
Chapter 12

FRAMEWORK FOR SETTING PRIORITIES

An essential component of the Lower Columbia Steelhead Conservation Initiative (LCSCI) in restoring wild steelhead in the lower Columbia River involves developing and using a framework for setting priorities for action. Setting priorities helps coordinate the activities of efforts between and within subbasins so that restoration can be most effective and efficient given the risks and status of wild salmonid resources at watershed and ESU scales. Priorities must reflect a comprehensive and integrated approach to address major factors for decline including habitat, hydropower, hatcheries, and harvest. Prioritization should help focus both long- and short term efforts of state and federal agencies, local governments, tribes, and voluntary contributions.

The approach outlined here emphasizes a prioritization scheme being developed for use by state agencies. In some cases, the jurisdictional authority to resolve factors responsible for the declining steelhead, trout, and salmon populations is held by local or federal governments. In other cases, voluntary actions by private landowners may provide the most effective or efficient response to addressing the identified factors for decline.

The Joint Cabinet strongly urges local and federal government agencies and private landowners to utilize the prioritization format outlined here and identify those priority actions that can be taken individually or cumulatively in partnerships, to provide the most effective and efficient approach to reduce key factors for decline.

Setting long term priorities for restoration actions is a challenging task that can be approached in various ways. Some approaches identify productive (healthy) core areas or refugia and set the priority of actions to protect and enhance the productivity of those areas. Other approaches assess current fish productivity and risks, habitat quality, and opportunities for successful restoration; the existence of watershed plans or analyses; and/or the economic consequences of inaction.

From the LCSCI or ESU perspective, priorities will be developed to halt the further decline of steelhead and other salmonid species of concern and to direct the implementation of activities that provide the greatest potential for restoration or protection. The effort to set priorities will result in a list of specific geographical and biological units within the LCSCI area that will receive the most immediate or most complete protection and restoration in the short and longer term.

Analytical Approach

Whether the focus is on long or short term needs, the priority-setting process for the LCSCI involves four general steps:

1. identify key steelhead stocks of highest concern,

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2. identify other coexisting stocks and species of concern,
 3. assess major factors for decline, and
 4. identify priority actions.
- 1) **Identify key steelhead stocks of concern** - As described in Appendix 2, the LCSCI area includes Watershed Inventory Resource Areas 25, 26, 27, 28, and the westerly portion of 29. Of the 23 wild steelhead stocks in the LCSCI area, one was identified as critical, 18 as depressed, one as healthy, and three as unknown. As mentioned in Appendix 2, critical stocks are defined as those *experiencing production levels that are so low that permanent damage to the stock is likely or has already occurred*. Depressed stocks are those *whose production is below expected levels, based upon available habitat and natural variations in survival rates, but above where permanent damage to the stock is likely*.
- For steelhead in the LCSCI area, WDFW and NMFS have identified the stock health of wild summer steelhead to be of major concern. Therefore, high priority consideration will be given to individual and collective efforts to protect and restore wild summer steelhead stocks. In most cases, actions for summer steelhead will benefit winter steelhead and other species. Secondarily, conservation measures will also be needed that target depressed winter steelhead stocks.**
- 2) **Identify other salmonid stocks of concern** - The presence of other stocks of concern will be included to maximize the benefit for salmonids in the LCSCI area and streamline planning with local governments and other stakeholders. As mentioned previously there are stocks of chum, chinook, coho salmon, and coastal cutthroat and bull trout in the LCSCI area. Virtually every stream contains more than one salmonid species. Most of these species are presently in the process of undergoing some form of review or listing consideration under the ESA.
- 3) **Assess factors for decline** - Once priority stocks and areas are defined, risk agents underlying stock declines will be reviewed. The following approach addresses key issues using available information. The method includes indices for salmonid productivity, current habitat condition, potential limitations to salmonid productivity, and the potential and actual capacity of watersheds. Elements to address these key issues include:

Salmonid Productivity

1. Current productivity - determined by harvest trends (declining, stable, increasing)
2. Relative productivity - percentage of escapement; smolt production
3. Historical presence/abundance

Current Habitat Condition

1. Cobble/gravel embeddedness
2. Mass wasting occurrence and potential
3. Access to habitat
4. High stream flows (time of year, frequency, magnitude)
5. Low stream flows (time of year, threshold, duration)
6. Water quality (e.g., temperature, dissolved oxygen, toxins, pH)
7. Nutrients (based on fish escapement and benthic invertebrate diversity)
8. Instream habitat (e.g., large wood, spawning gravels)
9. Channel morphology, complexity, and diversity
10. Off-channel rearing
11. Saltwater/estuarine factors (e.g., feeding, cover, holding, predation, water quality)
12. Salmonid use of stream (spawning, rearing, presence)

Potential Impacts to Productivity

1. Fine sediment/percent fines
2. Potential for mass wasting
3. High stream flows (time of year, frequency, magnitude)
4. Low stream flows (time of year, threshold, duration)
5. Water quality (e.g., temperature, dissolved oxygen, toxins, pH)
6. Nutrients (based on fish escapement and benthic invertebrate diversity)
7. Large woody debris abundance and recruitment
8. Saltwater/estuarine factors
9. Fish passage barriers
10. Planned development (e.g. projected population growth and related development)

Capacity

1. Genetic resources (e.g., genetic diversity, stock source, potential for interbreeding/gene flow).
2. Artificial/natural production (e.g., goal of fish production, factors affecting production, harvest goals, suitability for selective harvest).
3. Current harvest effects (on natural production, on artificial production, harvest goals, suitability for selective harvest).
4. Potential for supplementation

The purpose of supplementation is to increase numbers of wild spawners and maintain genetic characteristics, such as the natural genetic profile, contributing to the productivity of the target wild stock, while also containing risks to non-target stocks.

Salmonid productivity, current habitat condition, and capacity will be assessed to determine the factors most likely affecting fish productivity. For example, is a fish passage barrier limiting access to habitat? Are hatchery fish being released in prime wild fish

rearing areas, adding stress to those populations by competing with them for food and space, and/or increasing the risks of genetic introgression? The results from these initial analyses will help identify and prioritize major factors for decline and actions to be taken.

Potential land use impacts to salmonid productivity will also be assessed to assess risks and identify conservation measures that can be taken to prevent further degradation to steelhead/salmonid habitat.

- 4) **Identify priority actions** - Once key factors for decline have been identified, conservation measures will be defined and prioritized. Priorities will emerge from an assessment of critical biological need (using the approach outlined above) and the opportunity for actual measure implementation. Opportunity will be assessed by addressing questions such as:

Habitat

- critical factors for decline
- project goals/desired future condition (includes fish/habitat plans)
- fishery management objectives and considerations
- risk (future development, site stability)
- methods, including specific protocols, operations, and risk management plans
- monitoring and evaluation objectives and plans, and adaptive management process
- expected duration

Supplementation

- stock status
- critical factors for decline, including habitat factors
- project goals/desired future condition (includes fish/habitat plans)
- natural production objectives and considerations
- fishery management objectives and considerations
- risk assessments (genetic/ecological risks on target/non-target species/stocks)
- availability of suitable donor stock(s)
- methods, including specific protocols, operations, and risk management plans
- monitoring and evaluation objectives and plans, and adaptive management process
- expected duration

Feasibility

- Have possible funding sources been identified for each project/action?
- Have performance measures been identified for each project/action?
- Have suitable project designs been developed?
- Do the actions require environmental permits, and have they been acquired?

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- Have project/action costs been developed?
 - Has benefit-cost been considered?

The long term framework outlined above will be refined over time. Additional information and any changes will be described in subsequent drafts of the LCSCI.

Initial State Priorities and Action Criteria

Several criteria are outlined here to help identify high priority state conservation efforts in the short term while the above process is being refined. Criteria and priorities may change as new information and analyses become available.

Stock/Subbasin Priorities

Initial state prioritization efforts identified specific geographic and biological units within the LCSCI area that should receive the most immediate or most complete protection or restoration based on specified criteria. The steelhead stocks in the LCSCI area were prioritized primarily according to their status as described in the recent WDFW stock status update for lower Columbia steelhead (Appendix 2), with consideration also given for complementary multispecies benefits, and the need to improve connectivity among populations. As mentioned above, more than one species of concern exist in nearly all basins. Five tiers or priority layers were identified as listed below:

Step 1: Identify Key Stocks

- TIER 1 (First level priority for action) - Criteria: those stocks that are “healthy” and “critical”; there is only one of each in the LCSCI area.
 - ◊ Healthy - Kalama River winter-run
 - ◊ Critical - Wind River summer-run
- TIER 2 (Second level priority for action) - Criteria: the remaining summer-run stocks; summer-run have been identified by WDFW and NMFS as needing urgent attention due to their depressed status, limited distribution, and life history. All but one are “depressed” in LCSCI area, the excepted stock is “critical” (per Tier 1);
 - ◊ Depressed - East Fork Lewis River summer-run
 - ◊ Depressed - Washougal River summer-run
 - ◊ Depressed - Kalama River summer-run

Step 2: Identify Other Stocks of Concern

- TIER 3 (Third level priority for action) - Criteria: greater multispecies benefits (chum, chinook and cutthroat) and, of the remaining depressed stocks in the LCSCI area, stocks that are most healthy, and those that are least healthy;
 - ◊ Depressed - Grays River winter-run (priority also for chum)
 - ◊ Unknown - Hamilton Creek winter-run (priority also for chum)

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- ◊ Depressed - Coweeman River winter-run
 - ◊ Depressed - Green River winter-run
 - ◊ Depressed - South Fork Toutle River winter-run
 - ◊ Depressed - East Fork Lewis River winter-run
 - ◊ Depressed - North Fork Lewis River winter-run
 - ◊ Depressed - Washougal River winter-run
 - ◊ Unknown - Wind River winter-run
- TIER 4 (Fourth level priority for action) - Criteria: stocks in the LCSCI area represented by smaller populations at intermediate risk, or those that are strongly affected by hydro/dams/FERC projects and process (and thus actions would be more long-term in nature);
 - ◊ Depressed - Salmon Creek winter-run (small population)
 - ◊ Depressed - Abernathy Creek winter-run (small population)
 - ◊ Depressed - Skamokawa Creek winter-run (small population)
 - ◊ Depressed - Cowlitz River winter-run (hydro/dams)
 - ◊ Depressed - North Fork Toutle winter-run (hydro/dams)
 - ◊ Depressed - North Fork Lewis summer-run (hydro/dams)
 - TIER 5 (Lowest priority for action) - Criteria: the remainder of stocks in the LCSCI area, outside the ESU proposed for listing.
 - ◊ Depressed - Elochoman River winter-run
 - ◊ Unknown - Mill Creek winter-run
 - ◊ Depressed - Germany Creek winter-run

Step 3: Assess Factors for Decline

The need for prioritization and action ranges across all risk factors including habitat, fish management, and hydropower/dams issues; however, it is especially critical for habitat issues. As outlined in Chapter 7 and described in more detail in Chapter 14, the factors responsible for the decline of steelhead, trout, and salmon populations related to habitat are:

- Fish access and barriers to passage
- Decreased channel and floodplain complexity
- Riparian areas and wetland degradation
- Impaired water quality
- Sediment transport and fine sediments
- Basin hydrology and stream flow

The importance of each factor for decline varies from stock to stock, and subbasin to subbasin and to some extent, from species to species. Each factor for decline will be prioritized within each subbasin as the individual factor affects the identified priority steelhead stocks within that subbasin. The initial state prioritization effort will focus on

those subbasins where Tier 1 and Tier 2 steelhead stocks reside. It will be necessary to perform a similar analysis for the other stocks in the LCSCI area.

Step 4: Identify Priority Actions

For each of the factors for decline affecting the prioritized steelhead stocks, the criteria below will be taken into consideration in developing and refining initial action priorities. The two groups of criteria below will be applied to all stocks, with the first group having the most weight. Please see Chapter 15 for priority actions organized by stock/subbasin Tier.

GROUP ONE CRITERIA

- Critical/Healthy stock status (i.e., Tier 1 stocks).
- Those actions with clear expectations and outcomes.
- Those actions that provide immediate, direct and measurable benefits.
- Subbasins, basins or watersheds that support multiple salmonid species and that would benefit most from targeted attention to specific limiting factors.
- Those actions that provide the greatest return for the investment (cost-benefit analysis).
- Those actions that can be taken the soonest and provide early successes (readiness to proceed).

GROUP TWO CRITERIA

- Those actions that can be taken by existing state agency staff in the lower Columbia region.
- Those actions that satisfy other mandates as well (i.e. TMDLs).
- Those actions that provide a model for potential applicability elsewhere in the state.
- Those actions that develop partnership working relationships.
- Those actions that utilize proven technology or existing institutional structures.
- Those actions that support future watershed planning efforts.

The time frame for initiating priority state actions will fall into one (or more) of three categories, those that can be: (1) continued as existing activities or initiated immediately (0 - 6 months), (2) initiated in the next fiscal year (7/1/98 - 6/20/99) if additional funds are appropriated or reprioritized (see Chapter 11), and (3) best addressed within a future watershed planning process.

By necessity any initial assessment approach must be relatively cursory based on information that is readily available, which in most cases is very limited. Such assessments are sufficient to establish broad and initial priorities for action as has been done here. Eventually, improved watershed characterization information should be available to allow more in-depth assessments of watershed functions to more fully characterize and understand the impacts of human activities within a watershed on the watershed functions that support salmonid habitat. Such analysis is needed to develop more detailed and longer term priorities for action in LCSCI area watersheds and to ensure the most cost-effective

use of limited resources. Agencies of the Joint Cabinet are working to develop coordinated methods and procedures for detailed watershed characterizations that will provide an even stronger basis for priority-setting over the long term.